

KANSAS CITYS  
EXHIBIT #9: ALTERNATIVES--ECONOMICS SCREENING SUMMARY  
Oct 04 prices, (\$000, 50 year period of analysis, 5.375% Interest Rate)  
March 2, 2006

Alternatives Considered, NED Plan for Each Unit, and Overall NED Plan	Future Without Project Annual Damages	Total Project First Cost*	Interest During Constr.	Project Economic Cost	Annualized Project Economic Cost	Expected Increase in Annual OMRR&R Cost****	Other Direct Costs (Annual)	Total Annual Cost*****	Annual Benefits	B/C Ratio	Net Benefits	Residual Damages	New Top of Levee/ Floodwall Elev (ft. m.s.l.)	WITHOUT PROJECT Reliability against the 1% event	WITH PROJECT Reliability against the 1% event	Other Beneficial Effects	Other Adverse Effects (accounted for in Other Direct Costs)*****
ARGENTINE UNIT	\$ 21,676.2													0.49			
Arg 1, nominal 500+0 raise*		\$ 30,372.0	\$ 3,026.0	\$ 33,398.0	\$ 1,936.4	\$ 12.2	Annual Induced Flood Damages and Private Pump Station Costs: \$196.4	\$ 2,145.0	\$ 15,652.6	7.3	\$ 13,507.6	\$ 6,023.7	778.24		0.95	Preserves Riparian Acres in Urban Area	Temporary potential for induced flood damages downstream pending completion of raises for downstream units (Arm & CID)/(\$185.2 annually). Some annual induced damages upstream (\$2.1 annually). Cost for two private pump station facilities to remove, replace and relocate discharge piping over the new levee (\$9.1 annually).
NED Plan: Arg 2, nominal 500+3 raise* -- also see note ***** for discussion of the designation of the Argentine NED alternative		\$ 52,568.0	\$ 5,888.0	\$ 58,456.0	\$ 3,389.3	\$ 12.2	Annual Induced Flood Damages and Private Pump Station Costs: \$210.8	\$ 3,612.3	\$ 17,637.8	4.9	\$ 14,025.5	\$ 4,038.4	781.24		0.99	Preserves Riparian Acres in Urban Area	Temporary potential for induced flood damages downstream pending completion of raises for downstream units (Arm & CID)/(\$199.1 annually). Some annual induced damages upstream (\$2.6 annually). Cost for two private pump station facilities to remove, replace and relocate discharge piping over the new levee (\$9.1 annually).
Arg 3, nominal 500+5 raise*		\$ 65,964.0	\$ 7,279.0	\$ 73,243.0	\$ 4,246.7	\$ 49.6	Annual Induced Flood Damages and Private Pump Station Costs: \$215.0	\$ 4,511.3	\$ 18,635.5	4.1	\$ 14,124.2	\$ 3,040.8	783.24		0.99	Preserves Riparian Acres in Urban Area	Temporary potential for induced flood damages downstream pending completion of raises for downstream units (Arm & CID)/(\$203.0 annually). Some annual induced damages upstream (\$2.9 annually). Cost for two private pump station facilities to remove, replace and relocate discharge piping over the new levee (\$9.1 annually).
Arg 4, No Raise, Pump Sta Remedies & Earthwork*		\$ 15,598.0	\$ 815.0	\$ 16,413.0	\$ 951.6	\$ 12.2	-	\$ 963.8	\$ 13,443.0	13.9	\$ 12,479.2	\$ 8,233.2	no chg		0.90		
FAIRFAX-JERSEY CR UNIT (2 sites)	\$ 16,084.0													0.82			
BPU Floodwall Site																	
Alt 1, Modified Wall (Add'l Row of Piles & Buttresses)		\$ 7,109.0	\$ 550.8	\$ 7,659.8	\$ 444.1	\$ 2.0	-	\$ 446.1	\$ 719.9	1.6	\$ 273.8	\$ 15,364.1	no chg		0.82		
Alt 2, Combo Wall		\$ 7,500.0	\$ 583.0	\$ 8,083.0	\$ 468.7	\$ 2.0	-	\$ 470.7	\$ 719.9	1.5	\$ 249.2	\$ 15,364.1	no chg		0.82		
JC Sheetpile Wall & Wharf Area Site*																	
Alt 1 Flood Fight**																	
Alt 2, New Closed Cell Sheetpile Wall		\$ 10,866.0	\$ 607.3	\$ 11,473.3	\$ 665.2	\$ 2.0	-	\$ 667.2	\$ 10,411.4	15.6	\$ 9,744.2	\$ 5,672.6	no chg		0.98		
Alt 3, New Wall, Auger Cast Piles & Tiebacks		\$ 9,629.0	\$ 538.1	\$ 10,167.1	\$ 589.5	\$ 2.0	-	\$ 591.5	\$ 10,411.4	17.6	\$ 9,819.9	\$ 5,672.6	no chg		0.98		
Alt 4, New Open Cell Sheetpile Wall		\$ 8,575.0	\$ 479.2	\$ 9,054.2	\$ 525.0	\$ 2.0	-	\$ 527.0	\$ 10,411.4	19.8	\$ 9,884.4	\$ 5,672.6	no chg		0.98		
NED PLAN, FAIRFAX- JERSEY CR UNIT: BPU Floodwall Alt 1 and JC Sheetpile Wall Alt 4		\$ 15,684.0	\$ 1,030.0	\$ 16,714.0	\$ 969.1	\$ 4.0	-	\$ 973.1	\$ 11,667.8	12.0	\$ 10,694.7	\$ 4,416.2	no chg		0.99		
NORTH KANSAS CITY UNIT (2 sites)	\$ 11,434.7													0.85			
Harlem Site																	
Alt 1, Flood Fight**																	
Alt 2, Landside Seepage Berm***		\$ 5,910.0	\$ 616.4	\$ 6,526.4	\$ 378.4	\$ 1.0	-	\$ 379.4	\$ 3,781.4	10.0	\$ 3,402.0	\$ 7,653.3	no chg		0.93		
Alt 3, Buried Collector System		\$ 1,455.0	\$ 68.0	\$ 1,523.0	\$ 88.3	\$ 1.5	-	\$ 89.8	\$ 3,781.4	42.1	\$ 3,691.6	\$ 7,653.3	no chg		0.93		
Alt 4, Pressure Relief Wells		\$ 1,992.0	\$ 81.0	\$ 2,073.0	\$ 120.2	\$ 25.8	-	\$ 146.0	\$ 3,781.4	25.9	\$ 3,635.4	\$ 7,653.3	no chg		0.93		
National Starch Site																	
Alt 1, Relief Well System		\$ 7,063.0	\$ 479.5	\$ 7,542.5	\$ 437.3	\$ 31.8	-	\$ 469.1	\$ 1,657.6	3.5	\$ 1,188.5	\$ 9,777.0	no chg		0.88		
NED PLAN, NORTH KANSAS CITY UNIT: Harlem Alt 3 and Nat'l Starch Alt 1		\$ 8,518.0	\$ 547.5	\$ 9,065.5	\$ 525.6	\$ 33.3	-	\$ 558.9	\$ 6,663.9	11.9	\$ 6,105.0	\$ 4,770.8	no chg		0.98		
EAST BOTTOMS UNIT (confluence site)	\$ 7,130.4													0.96			
Alt 1, Flood Fight**																	
Alt 2 Sheetpile Wall		\$ 12,849.0	\$ 390.0	\$ 13,239.0	\$ 767.6	\$ 2.0	-	\$ 769.6	\$ 4,232.7	5.5	\$ 3,463.1	\$ 2,897.7	no chg		0.998		
Alt 3 Slurry Cut-Off Wall		\$ 3,416.0	\$ 106.8	\$ 3,522.8	\$ 204.3	\$ 2.0	-	\$ 206.3	\$ 4,232.7	20.5	\$ 4,026.4	\$ 2,897.7	no chg		0.998		
NED PLAN E Bottoms: Alt 4, Pressure Relief Wells		\$ 1,346.0	\$ 50.7	\$ 1,396.7	\$ 81.0	\$ 24.8	-	\$ 105.8	\$ 4,232.7	40.0	\$ 4,126.9	\$ 2,897.7	no chg		0.998		

NOTES:

\* Includes PED, LERRD and Construction costs; Argentine Unit: Project First Cost shown includes non-creditable relocations that are not cost shared features of the project; Fairfax-JC Unit: JC Sheetpile Wall & Wharf Area Project First Cost shown includes wharf area cost; however, wharf area is not a cost shared feature of the project.

\*\* The true costs of a flood fight alternative are difficult to determine. A flood fight offers no guarantees of success and necessarily incurs tremendous costs for emergency services and floodplain evacuation. Because of the massive level of industrial, commercial, public and other investment located in the Kansas Citys levee units, the potential for an entire unit to flood if the levee/floodwall were undercut or failed, and the resulting massive damages that would occur in the unit, it is unlikely that a flood fight alternative would be considered an acceptable and viable alternative to be carried forward for further refinement.

\*\*\* Harlem Site Alt 2 Landside Seepage Berm does not include costs for relocating residents or utilities relocations.

\*\*\*\* OMRR&R cost shown is the estimated net increase in sponsor OMRR&R costs with the implementation of the proposed work.

\*\*\*\*\* Total Annual Cost includes Other Direct Costs (induced flood damages and privately owned pump station increase in O&M)

\*\*\*\*\* Ref Argentine "n500+3 raise" selection as the NED plan for the Argentine unit: IAW with HQUSACE Policy, when two alternatives provide nearly the same maximum NED benefits (in this case the n500+3 and the nom500+5), then the lesser cost alternative (of the two) is deemed the NED alternative.